

What Is Claimed Is:

1. An apparatus for generating an output signal from a broadcast signal in a digital broadcast system comprising:
 - a memory device for storing predefined content segments;
 - 5 a receiver for receiving said broadcast signal, said broadcast signal comprising content segments and control data provided among said content segments to indicate when said predefined content segments are to be inserted in said output signal by said apparatus, said receiver being operable to extract said content segments and said control data from said broadcast signal;
 - 10 an output device for playing back said output signal;
 - a processing device configured to receive said control data from said receiver and to generate a control signal used by said memory device to retrieve selected ones of said predefined content segments in accordance with said control data; and
 - a multiplexer configured to receive as inputs said control signal generated by said
 - 15 processing device, said content segments from said receiver and said selected predefined content segments and to generate said output signal using said content segments received by said receiver and inserting said predefined content segments among said content segments in accordance with said control data.
- 20 2. An apparatus as claimed in claim 1, wherein said memory device comprises index data with which to identify each of said predefined content segments stored therein, and said control data comprises said index data corresponding to the selected said predefined content segments, said processing device being operable to provide said index data in said control data in said control signal for retrieving said predefined content segments
- 25 corresponding thereto from said memory device.
3. An apparatus as claimed in claim 1, wherein said broadcast signal comprises content segment progress data for providing a time index for playing back one of said predefined content segments associated therewith, said multiplexer being controllable to
- 30 play back live broadcast content corresponding to received said content segments in said

broadcast signal in substantially real-time in said output signal, said receiver being operable to extract said index data and corresponding said content progress data in said broadcast signal as said broadcast signal is received, said processing device being operable to generate said control signal to instruct said multiplexer to insert selected said
5 predefined content segments among said segments of program content using said index data and said content progress data to determine when the selected said predefined content segments are to be played back as said broadcast signal is received.

4. An apparatus as claimed in claim 3, further comprising a loudspeaker with which
10 to generate an audio output signal using said live broadcast data and said selected predefined content segments inserted at selected intervals therein in accordance with said index data and said content progress data.

5. An apparatus as claimed in claim 1, wherein said processing device is
15 programmable to allow said predefined content segments in said memory device to be updated.

6. An apparatus as claimed in claim 5, wherein said receiver is operable to receive
20 broadcast content in said broadcast signal for updating said predefined content segments, and said processing device is operable to control said memory device to perform at least one of a plurality of updating operations comprising deleting selected ones of said predefined content segments, adding more predefined content segments, and substituting received said predefined content segments for previously stored ones of said predefined content segments.

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7. A method for generating an output signal at a receiver using a broadcast signal transmitted in a digital broadcast system comprising the steps of:

storing predefined content segments in a memory device associated with said receiver;

receiving said broadcast signal at said receiver, said broadcast signal comprising segments of program content and segments of control data;

accessing and retrieving selected said predefined content segments identified by said control data from said memory device; and

5 playing back the selected said predefined content segments at selected points in said output signal in accordance with said control data.

8. A method as claimed in claim 7, wherein said memory device comprises index data with which to identify each of said predefined content segments stored therein, and
10 said control data comprises said index data corresponding to the selected said predefined content segments, said accessing step comprises the step of providing said index data in said control data to a processing device for retrieving said predefined content segments corresponding thereto from said memory device.

15 9. A method as claimed in claim 7, wherein said broadcast signal comprises content segment progress data for providing a time index for playing back one of said predefined content segments associated therewith, said playing back step comprising the steps of:

playing back live broadcast content in said broadcast signal in substantially real-time in said output signal;

20 extracting said index data and corresponding said content progress data in said broadcast signal as said broadcast signal is received; and

inserting the selected said predefined content segments among said segments of program content using said index data and said content progress data to determine when the selected said predefined content segments are to be played back as said broadcast
25 signal is received.

10. A method as claimed in claim 9, wherein playing back said output signal comprises the step of generating an audio output signal using said live broadcast data and inserting the selected said predefined content segments at selected intervals therein in
30 accordance with said index data and said content progress data.

11. A method as claimed in claim 7, further comprising the step of updating said predefined content segments in said memory device.
- 5 12. A method as claimed in claim 11, wherein said updating step comprises the step of receiving broadcast content in said broadcast signal for updating said predefined content segments.
- 10 13. A method as claimed in claim 11, wherein said updating step comprises the step of retrieving program content stored on a portable storage medium to update said predefined content segments in said memory device.
14. A transmitter in a digital broadcast system comprising:
an input device for receiving content segments;
- 15 a memory device for storing index data for identifying predefined content segments stored at remote locations;
a multiplexer for multiplexing selected said content segments with at least said index data to generate a broadcast signal having, said broadcast signal comprising said content segments with said index data inserted at selected being used by receiver units at
- 20 said remote locations to playback said content segments.
15. An apparatus for generating an output signal from a broadcast signal in a digital broadcast system comprising:
a memory device for storing content segments;
- 25 an output device for playing back said output signal;
a receiver for receiving said broadcast signal, said broadcast signal comprising control data to indicate which said content segments to playback via said output device and when said content segments are to be played back, said receiver being operable to extract said control data from said broadcast signal;

a processing device configured to receive said control data from said receiver, to generate a control signal used by said memory device to retrieve selected ones of said control segments in accordance with said control data, and to playback the selected said control segments substantially in real-time with respect to said broadcast signal.

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16. An apparatus as claimed in claim 15, wherein said control data in said broadcast signal comprises segment data corresponding to each of the selected ones of said content segments for playback, said segment data for a content segment comprising progress information indicating how much of the content segment remains to be played back via said output device at any given point during the duration of the content segment for substantially real-time playback during reception of said broadcast signal.

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17. An apparatus as claimed in claim 17, wherein said control data in said broadcast signal comprises segment data corresponding to each of the selected ones of said content segments for playback, said segment data for a content segment being transmitted in lieu of the content in the content segment to reduce bandwidth used to transmit said broadcast signal.

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18. A apparatus as claimed in claim 17, wherein said segment data has substantially the same duration for transmission in said broadcast signal as the content in the content segment to which said segment data corresponds.

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19. An apparatus as claimed in claim 17, wherein said segment data for a content segment comprises a content segment index used by said processing device to locate the content segment in said local storage device, and progress information indicating how much of the content segment remains to be played back, said content segment index and said progress information requiring less bandwidth for transmission in said broadcast signal than the content in the content segment.

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